

DIGITAL TIME BASE CORRECTOR

# TBC-2B

FOR  
RELIABLE  
TIME BASE  
STABILITY



AMPEX



# TBC-2B

## THE WORLD'S MOST POPULAR TIME BASE CORRECTOR

The Ampex TBC-2B is the world's most popular time base corrector and has earned a reputation for reliability and consistency.

When used with the Ampex VPR series of VTRs, the TBC-2B's unique error processing circuitry delivers broadcast-stable, transition-free slow motion playback from freeze frame all the way up to play speed. With the VPR-2B, this range is expanded even further to include reverse slow motion as well as color pictures at faster than normal play speed, and with the VPR-80 from freeze frame to 1½x play speed.

### Flexibility of Time Base Correction

The TBC-2B has the most flexible time base correction system available. Not only does it cope with the wildest of gyroscopic errors from small format ENG portable recorders, but the TBC-2B also handles the subtle, complex color velocity errors which are invariably present in all videotape recorders.

### Unmatched Integrity

With the TBC-2B, you will never have to worry about meeting broadcast standards. The built-in color sync generator has been designed for SC-H phase stabilized operation. Picture centering shifts due to TBC "cycle hopping" are a thing of the past. The TBC-2B automatically detects correct vertical centering and locks it in place.

Both horizontal and vertical blanking widths are fully adjustable so that picture cropping can be established in the camera where it belongs instead of at the TBC output.



If your application requires a stand alone unit for one of the popular ½ inch or ¾ inch heterodyne recorders, the TBC-2B has a convenient front panel switch to enable the optional heterodyne color processing circuitry.

The TBC-2B can even time share playback between the VPR and your ¾ inch heterodyne recorder, thereby expanding the utilization of your equipment.

The most advanced LSI circuitry has been incorporated in the A to D converter of the TBC-2B. Not only does it reduce the size and complexity of the A/D conversion circuitry, but precise semiconductor matching afforded by single chip construction gives you exceptional freedom from drift and unexcelled transparency in signal processing.

### FEATURES:

- Interfaces with Ampex VPR-1, VPR-2, VPR-2B, VPR-20B and VPR-80 machines as well as other non-segmented helical scan VTRs.
- The TBC-2B is the only TBC that makes possible pictures in fast shuttle, and slow motion playback on the Ampex VPR series of VTRs.

- Wide range of color slow motion playback is possible on the VPR-2, VPR-2B and VPR-80.
- Sixteen-line memory (PAL/SECAM); 12-line memory (NTSC)
- Color SC-H phase stabilized sync generator.
- Automatic vertical centering for stable picture centering.
- Fully adjustable sync and blanking controls.
- Standard one-line delay color-phased dropout compensator.
- Single board analog-to-digital converter for exceptional linearity and freedom from drift.
- Standard line by line velocity compensator with second order correction of non-linear color phase errors.

Features that were once optional are now standard in every TBC-2B:

- A unique *line by line velocity compensator* with second order correction of complex color phase errors to boost performance during multi-generation recording sessions.
- A *dropout compensator* which detects off-tape signal losses and replaces the missing information with video from a previous horizontal line.



# IT'S EASY TO USE AND SIMPLE TO SERVICE

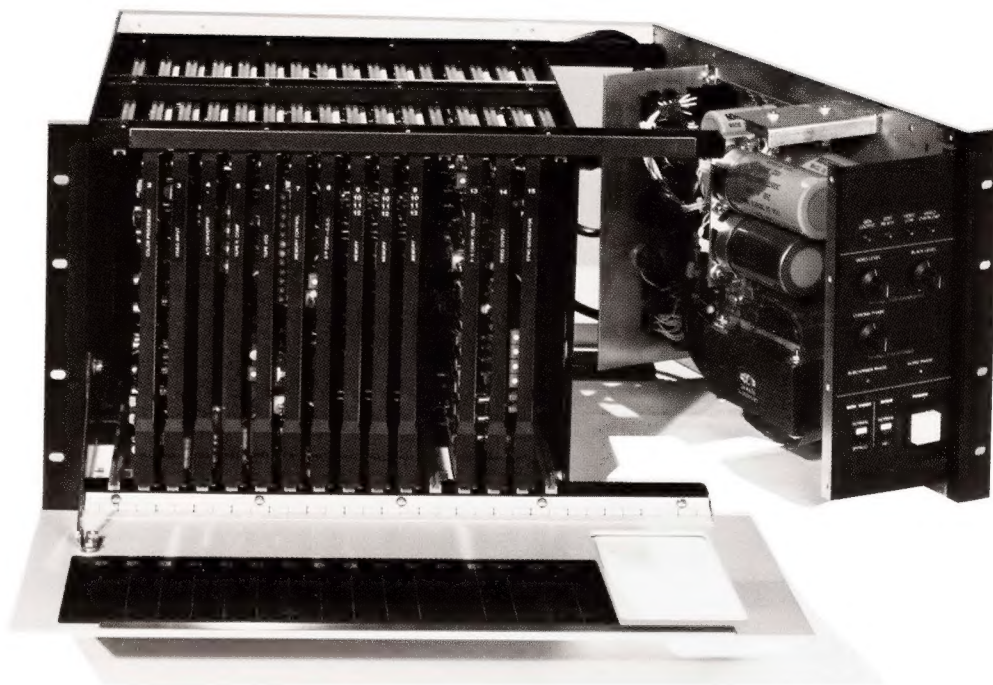
The TBC-2B is ready to work as soon as you receive it. Just hook it up, make the usual system timing adjustments and forget it. The TBC-2B is designed for long-term, drift-free operation. And if servicing is ever required, the built-in diagnostics and maintenance accessibility make servicing easy.

All printed wiring assemblies (PWAs) can be pulled from the front, and the power supply swings out from the side. LED functional indicators on the PWAs themselves are supplemented by LEDs on the front panel for Gen Locked, Edit Ready, Video Low and Video Overload. All relevant test points are accessible at the front of the PWAs and an extender card is provided as standard equipment.

## Configurations, Options

The TBC-2B is available in VPR console mount, rack mount and portable cabinet configurations. This sophisticated TBC features the following plug-in modules to give it the best flexibility of any TBC available today:

- A *heterodyne color processor* that converts small format VTR signal to a direct color signal for broadcast stable time base correction.
- A *video processor accessory* for any application which requires color monitoring from a non-phased picture source such as a non-capstan servo VPR.



*Electronic assemblies are easily accessible for fast, simple servicing.*



*Rack Mount*



*Table Top*



# TBC-2B SPECIFICATIONS

GENERAL		NTSC 525/60	PAL/SECAM 625/50
Digital Sampling Frequency:		10.7 MHz (3 x Fsc)	13.3 MHz (3 x Fsc)
Quantizing Levels:		256 Levels (8 bits)	256 Levels (8 bits)
Type of Correction:		Dynamic correction™ utilizes both line-by-line and averaging signal processing techniques. Choice of automatic vertical centering or floating window operation.	
Size: Standard 11 in (279 mm) High Rack Case		19 in (483 mm) W x 11 in (279 mm) H x 18 in (457 mm) D	19 in (483 mm) W x 11 in (279 mm) H x 18 in (457 mm) D
Weight:		80 lbs. (36.29 kg)	80 lbs. (36.29 kg)
Power Requirements:		less than 250 watts 100/120 VAC ±10% 60 Hz	less than 300 watts 220/240 VAC ±10% 50 Hz
Operating Environment:			
Temperature:		0° to 45°C	0° to 45°C
Humidity:		10% to 90% RH (Non Condensing)	10% to 90% RH (Non Condensing)
VIDEO SIGNAL PERFORMANCE			
Bandwidth:		Flat (±.25 dB) to 4.2 MHz	Flat (±.25 dB) to 5.5 MHz
Signal-To-Noise Ratio <sup>1</sup> :		56 dB	56 dB
Differential Gain <sup>2</sup> :		2%	3%
Differential Phase <sup>2</sup> :		2°	3°
Transient Response (2T Pulse):		1% K Factor	1% K Factor
TIME BASE PERFORMANCE			
Correction Range (Window):		Greater than 10 horizontal lines	Greater than 14 horizontal lines
Memory Size:		12 horizontal lines	16 horizontal lines
Output Jitter <sup>3</sup> :			
Monochrome		±10 nsec	±20 nsec
Color		NTSC ±2.5 nsec	PAL ±3 nsec      SECAM ±20 nsec
INPUT SIGNALS			
Tape Video:		1V ± 2 dB Composite Video (75Ω)	
Reference Video:		1V ± 2 dB Composite Video or Color Black (Loop thru or 75Ω)	
Dropout Compensator: (Optional)		0.5 to 4 Volts R.F. from VTR or TTL Dropout Pulse (Dropout = Low)	
OUTPUT SIGNALS			
Video Output (3):		(a) 1V Composite (75Ω) (b) 1V Composite or Non Composite (75Ω) (c) 1V Composite (75Ω) Monitor Output Switchable Normal/Bypass	
Sync Coherent S.C.:		2V P-P Sine Wave at S.C. Frequency (NTSC only)	
VTR Advanced Reference:		Composite Sync @ Color Video Level (75Ω) or TTL Level or Vertical Drive @ TTL Level (Jumper Selectable)	

Note 1: VTR-TBC system signal-to-noise ratio is determined primarily by VTR performance, e.g., 47 dB VTR S/N = 46.5 dB System S/N. This gives an equivalent TBC S/N ratio of 56 dB.

Note 2: Measured using a non-synchronous, subcarrier, modulated ramp with subcarrier amplitude equal to that of the color burst.

Note 3: Output jitter is directly dependent on the S/N of the input signal. Specification based on an input S/N of 47 dB.


**Ampex reserves the right to make product and specification changes at any time without notice.**

**U.S. Field Offices In:** CALIFORNIA, Cupertino (408) 255-4800; Glendale (213) 240-5000 • GEORGIA, Atlanta (404) 451-7112 • ILLINOIS, Arlington Heights (312) 593-6000 • KENTUCKY, Louisville (502) 239-6111 • MARYLAND, Bethesda (301) 530-8800 • NEW JERSEY, Allendale (201) 825-9600 (in New York (212) 947-8633) • OHIO, Dayton (513) 254-6101 • TEXAS, Carrollton (214) 960-1162 • UTAH, Salt Lake City (801) 487-8181 • WASHINGTON, Tukwila (206) 575-0156

**International Sales or Service Companies:** ARGENTINA, Buenos Aires, 46-2776 • AUSTRALIA, North Ryde, NSW, (02) 887-3333 • SAUDI ARABIA, Manama, 274139 • BELGIUM, Nivelles, 067/22.49.21 • BRAZIL, Rio de Janeiro, (021) 274-8122 • CANADA, Bramalea, Ont., (416) 791-3100 • COLOMBIA, Bogota, 236-7855 • FRANCE, Paris, 270-55-00 • W. GERMANY, Frankfurt (Main), 60580 • HONG KONG, Kowloon, 3-678051 • ITALY, Rome, (06) 546991 • JAPAN, Tokyo, (03) 767-4521/2/3 • MEXICO, Mexico D.F., 539-68-70/71/72 • NETHERLANDS, Utrecht, 030-612921 • SINGAPORE, Singapore, 2239241 • SWITZERLAND, Fribourg, (037) 81.31.11 • SPAIN, Madrid, 766.40.49 • SWEDEN, Sundbyberg, 08/28 29 10 • UNITED KINGDOM, Reading, Berks., (0734) 875200 • VENEZUELA, Caracas, 782-7122, Ext. 20

## AMPEX

Ampex Corporation, Audio-Video Systems Division  
401 Broadway  
Redwood City, California 94063

Ampex Corporation • One of The Signal Companies 

© 1983 Ampex Corporation  
Litho in U.S.A. — V841 — 3/83